

## **REMARKS**

Claims 1, 13-14, 18, 22-23, 30 and 36 are amended. Claims 2-3, 5-12, 15-17, 19-21, 24-29, 31-35, 37 and 39-41 were previously presented, claims 42-64 are added; claims 4 and 38 are canceled. In view of these changes, claims 1-3, 5-37 and 39-64 are pending in the application.

### **1. Bosch Process.**

The Examiner has requested that the Applicant indicate which references teach the Bosch process mentioned in the Application. As noted in the background of the Application, the Bosch process is the alternating application of a passivant and an etchant. Accordingly, U.S. Patents 5,498,312; 5,501,893; 6,284,148 and 6,303,512 and any other cited references teach the Bosch process to the extent that they teach alternating an etchant with a passivant. As an example, column 3, lines 1-3 of U.S. Patent 6,306,512 teaches that in “a particularly preferred fashion, the etching steps are performed alternately with the deposition steps.” This teaching is exemplary of the Bosch process.

### **2. Rejection under 35 USC §112.**

Claims 13, 14 and 36 are rejected for under 35 USC §112. The claims have been amended to address these rejections.

### **3. Rejection of Claims 1-18 and 21 under 35 USC §102.**

Claims 1-18 and 21 are rejected as being anticipated by U.S. Patent 6,303,512 (Laermer). Independent Claim 1 is amended to specify an etching medium consisting of a fluorine containing gas and a partial passivant. The partial passivant is selected from the group consisting of C<sub>4</sub>F<sub>8</sub>, CH<sub>2</sub>F<sub>2</sub> and CHF<sub>3</sub>. In contrast, Laermer teaches a gas mixture that includes SF<sub>6</sub> or NF<sub>3</sub> and a secondary reactant and “adding ... gasses such as CHF<sub>3</sub>, C<sub>4</sub>F<sub>8</sub>, CF<sub>4</sub>, C<sub>2</sub>F<sub>6</sub>, C<sub>3</sub>F<sub>6</sub> to the gas mixture.” See column 3, lines 55-56. Accordingly, Laermer does not teach an etching medium consisting of a fluorine containing gas and a partial passivant where the partial passivant is selected from the group consisting of C<sub>4</sub>F<sub>8</sub>, CH<sub>2</sub>F<sub>2</sub> and CHF<sub>3</sub>. Because Laermer does not teach each element of the claims, the rejection should be withdrawn.

**4. Rejection of Claims 22-27 and 29-41 under 35 USC §102.**

Claims 22-27 and 29-41 are rejected as being anticipated by U.S. Patent 6,303,512 (Laermer). Independent Claim 22 is amended to specify an etching medium including Si<sub>2</sub>F<sub>6</sub> and one or more partial passivants. Because Laermer does not teach an etching medium including Si<sub>2</sub>F<sub>6</sub>, the rejection should be withdrawn.

**5. Previous and Outstanding Rejections under 35 USC §103.**

Claims 1-3, 5-37 were previously rejected over various combinations of U.S. Patent 4,776,661 (Handa), U.S. Patent 5,874,362 (Wong), U.S. Patent 6,235,214 (Deshmukh) and U.S. Patent Application 2001/0001652 (Kanno). These rejections have not been withdrawn and remain standing. The Claims are amended herein and were substantially amended in an Office Action mailed on August 8, 2003. The Response mailed 10/28/2003 did not explain how these Rejections relate to the claims as amended. Accordingly, the Examiner is respectfully requested to provide the relationship between these Rejections and the claims as currently amended.

**6. Rejection of Claims 1-3, 5-37 under 35 USC §103.**

Claims 1-3, 5-37 were previously rejected over various combinations of U.S. Patent 4,776,661 (Handa), U.S. Patent 5,874,362 (Wong), U.S. Patent 6,235,214 (Deshmukh) and U.S. Patent Application 2001/0001652 (Kanno).

Independent Claim 1 is directed to a method of forming an optical component. The method specifies applying an etching medium to a “light transmitting medium so as to form one or more waveguide surfaces with a smoothness less than 220 nm.” Independent Claim 22 contains similar limitations.

A prima facie case of obviousness is not established unless “there (is) a reasonable expectation of success” when combining the references. See MPEP §706.02(j). As set forth in both the Claims and Background of the application, the Applicant is trying to form waveguides with a smoothness better than 220 nm. As a result, the cited references must provide an expectation that a waveguide with a smoothness level better than 220 nm can be achieved. Handa, Wong, Deshmukh and/or Kanno do not teach or suggest the level of smoothness that can be achieved with the disclosed etches. As a result, the cited references do not provide the required expectation of success.

### Response to Examiner's Comments

In response to the above arguments, the Examiner only states that “the fact that Applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex Parte Obiaya*, 227 USPQ 58, 60 (Bd. Pt. App. & Inter 1985).”

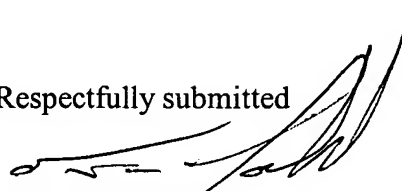
This language cited from *Obiaya* does not apply to the current inquiry. The text of the *Obiaya* decision is attached. The cited portion of *Obiaya* addresses the rebuttal of an unexpected results argument (*id.*). The Applicant has not made an unexpected results argument. Accordingly, the cited text does not address the Applicant's argument. Further, the cited text is directed to consideration of an Applicant's rebuttal to Prima Facie Obviousness as evident from header of MPEP §2145 (location of the *Obiaya* quote in the MPEP). Applicant has not yet presented a rebuttal argument. Further, Applicant is not required to present a rebuttal argument until the Examiner has established a prima facie case of obviousness. As a result, the cited text does not address issues that are current in the Application. Even further, the “advantage” in the cited *Obiaya* language (quicker response time) does not limit the *Obiaya* claims. Because the Applicant has not made any argument stemming from an advantage that does not limit the claims, there is no analogy between the “advantage” in the cited *Obiaya* language and any advantage being argued in the current Application. For any one of these reasons, the cited *Obiaya* language does not currently apply to the pending Application.

As disclosed in MPEP §2142, the burden is on the Examiner to show a reasonable expectation of success. Because the only argument presented by the Examiner does not currently apply to the pending Application, the Examiner has not met the requirements of MPEP §2142. As noted above, the claims specify forming a surface with a smoothness better than 220 nm. Accordingly, the Examiner is respectfully requested to meet the requirements of MPEP §2142 and provide the “convincing line of reasoning” as to why the cited art provides an expectation of success that a waveguide with a surface smoothness level better than 220 nm can be achieved.

## CONCLUSION

In light of the Amendments and arguments set forth above, Applicants believe they are entitled to a letters patent. The Examiner is encouraged to contact the undersigned with any questions.

Respectfully submitted



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Ex parte Obiaya

Patent and Trademark Office Board of Patent Appeals and Interferences

Opinion dated July 23, 1985

United States Patents Quarterly Headnotes

**PATENTS**

**[1] Patentability -- Invention -- In general (§ 51.501)**

Inventor's recognition of another advantage that would flow naturally from following suggestion of prior art cannot be basis of patentability when differences would otherwise be obvious.

**PATENTS**

**[2] Double patenting -- In general (§ 33.1)**

**Reissue -- In general (§ 58.1)**

Double patenting rejections are analogous to Section 103 rejections and depend on presence of prior "patent" as basis for rejection, and thus such rejection falls within ambit of those intended by reexamination statute.

**PATENTS**

**Particular Patents -- Combustible Element**

4,128,458, Obiaya, Combustible Element and Oxygen Concentration Sensor, Claims 1-13, rejected.

\*59 Appeal from Art Unit 112.

Reexamination No. 90/000,449, for No. 4,128,458, issued Dec. 5, 1978, based on application, Serial No. 845,049, filed Oct. 25, 1977. Rejection of Claims 1-13, sustained.

Stephen J. Schultz, for appellant.

Before Merker, Katz, and Pellman, Examiners-in-Chief.

Katz, Examiner-in-Chief.

This is a reexamination of Patent No. 4,128,458 and was requested by the defendant in an infringement suit brought by patentee.

This is an appeal from the final rejection of claims 1 through 14, which are all the claims in the case.

Claims 1 and 6 are illustrative of the appealed claims and read as follows:

1. A combustible fluid and oxygen concentration sensor comprising:

a. a combustible concentration analyzer;

b. an oxygen concentration analyzer;

c. conduit means for routing a fluid sample past said combustible concentration analyzer and oxygen concentration analyzer;

d. an inlet port to said conduit means for receiving a sample fluid;

e. an outlet port from said conduit means for ejecting said sample after analysis;

f. means for producing fluid flow in said conduit means from said inlet port to said outlet port;

g. means to correct the combustible concentration analyzer to an indicator; and

h. means to connect the oxygen analyzer to a second indicator;

i. said conduit means comprising:

i. first and second portions arranged to divide the flow into separate paths downstream from said inlet and upstream from said flow producing means;

ii. said first portion supplying the oxygen analyzer but not the combustible analyzer [sic, analyzer] with sample fluid;

iii. said second portion supplying the combustible analyzer but not the oxygen analyzer with sample fluid;

iv. a heater associated with said second portion upstream of said combustible analyzer; and

v. an inlet for providing air to said second portion upstream of said heater, to insure complete combustible analysis within said combustible analyzer.

6. The combustible fluid and oxygen concentration analyzer of Claim 4 where said oxygen concentration analyzer comprises:

a. a reactor member;

b. a heater element, configured in the form of a mesh structure, embedded within said reactor member; and

c. a base for mounting said reactor member;

d. said reactor member comprising:

i. an electrolyte with oxygen ion vacancies providing paths for oxygen ion conduction;

ii. a first and second conductive electrode for inducing a voltaic reaction within

said source, and

iii. means for connecting said first and second conductive electrodes to external means for measuring the voltage difference created in said electrodes by said voltaic reaction.

The claimed invention relates to a sensor containing a combustion fluid and oxygen concentration analyzer in which a fluid sample is drawn into the sensor apparatus and separated into two parts, one part going to the oxygen analyzer and the other part going to the combustion analyzer. A heater is employed to maintain the sample going to the combustion analyzer at a constant temperature to obtain uniform results. An inlet is also provided such that air can be used to combust the materials going to the combustion analyzer. The components of the oxygen analyzer are set out in greater detail in claims 6 and 13.

The references relied on are:

Lamb et al. 1,321,063 Nov. 4, 1919

Yant et al. 2,531,592 Nov. 28, 1950

Cherry 2,743,167 Apr. 24, 1956

Ross et al. 3,960,500 June 1, 1976

Fisher 4,063,898 Dec. 20, 1977

Obiaya 4,129,491 Dec. 12, 1978

\*60 "Product Specification E65-1, Oxygen and Combustibles Analyzer," 1956

"Bailey Product Instructions E65-6, Gas Analyzers Type OA, OB and OC", 1965

"Product Instructions E65-15, Heat Prover Combustion Analyzer", 1956

Bulletin P-23 of Thermox Instruments, Inc., 1976

Claims 1, 2, and 7 stand rejected under 35 U.S.C. 103 in view of the combination of OC Analyzer, Heat Prover or E65-1 in view of Ross et al. Claims 3, 4, 8 through 11 and 14 stand rejected for the same reasons and further in view of Yant et al., Lamb et al. or Cherry. Claim 7 stands rejected for the same reasons and further in view of Thermox. Claims 8 and 11 stand rejected under 35 U.S.C. § 103 in view of the combination of OC Analyzer, Heat Power or E65-1 taken with Ross et al., Thermox and Yant et al., Lamb et al. or Cherry. Claims 5 and 12 stand rejected under 35 U.S.C. § 103 over OC Analyzer, Heat Prover or E65-1 taken with Ross et al. and either Yant et al., Lamb et al. or Cherry and further in view of Fisher. Claims 6 and 13 stand rejected under the judicially-created doctrine of obvious type double patenting in view of the combination of the patented subject matter of claims 1 through 3, 6 and 7 of Obiaya taken with OC Analyzer, Heat Prover or E65-1 with Ross et al. and also either Yant et al., Lamb et al. or Cherry.

We have carefully considered the arguments in this case and find that we agree with the examiner for the reasons set forth in the Answer. We adopt these reasons as our own and add the following only for purpose of emphasis.

In view of the fact that the examiner has answered each of the points made by appellant, it would be redundant to repeat these points. We will restrict our comments to the highlights of the appeal.

The main features of the claimed invention relate to the parallel flow of a divided sample to two different analyzers, a vacuum to draw the sample to the analyzers and then to exhaust, and a heater means upstream of a combustion analyzer. A number of the claims call for specific features, such as a labyrinth heater, a pressure regulator and the use of a specific combustion sensor.

We believe that the references clearly disclose each of the features in similar apparatus such that one skilled in this art having these references available would have found the claimed invention to be obvious. The examiner has established a *prima facie* case of obviousness. See *In re Lintner*, 458 F.2d 1013, 173 USPQ 560 (CCPA 1972) and *In re Greenfield*, 571 F.2d 1185, 197 USPQ 227 (CCPA 1978). A number of the references, exemplified by E65-1, disclose that it is well-known to divide a sample into separate parts and pass one part to an oxygen sensor and the other part to a combustion sensor, the parts then being recombined and exhausted. Ross et al. disclose that the art recognizes that samples may be aspirated or sucked into the system so as to pass through the sensor. A number of the references disclose labyrinth heaters, pressure regulators and, as set forth in the claims of the Obiaya patent, combustion analyzers of the type described in claims 6 and 13, now before us.

Appellant has pointed out the deficiencies in each of the references. However, the rejection is based on the combination of references. The test of obviousness under 35 U.S.C. § 103 is not the express suggestion of the claimed invention in any or all of the references, but what the references taken collectively would suggest to those of ordinary skill in the art presumed to be familiar with them. Note *In Re Rosselet*, 347 F.2d 847, 146 USPQ 183 (CCPA 1965) and *In Re Simon*, 461 F.2d 1387, 174 USPQ 114 (CCPA 1972). We believe that one skilled in this art would have understood that the various features of the references could be combined to obtain the expected additive results.

[1] Appellant has presented evidence to indicate that a shorter response time is obtained when a labyrinth heater is employed, this being an unexpected result. However, the references disclosing labyrinth heaters indicate that the advantage obtained by using such heaters is that samples are maintained at a uniform temperature. The fact that appellant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. Note *In Re Best*, 562 F.2d 1252, 195 USPQ 430 (CCPA 1977) and *In Re Wilder*, 429 F.2d 447, 166 USPQ 545 (CCPA 1970).

The examiner has rejected claims 6 and 13 on the judicially-created doctrine of double patenting of the obviousness type. The determination of whether the rejection is proper under the reexamination statute is a question of first impression. The Statute governing reexamination of patents is contained in 35 U.S.C. § 301-307.

35 U.S.C. § 301 contains the key language that:

"Any person at any time may cite to the Office in writing prior art consisting of patents or printed publications." (emphasis added).

\*61 Section 302 states that a request for reexamination by the Office of any claim of a patent may be:

"on the basis of any *prior art* cited under the provisions of Section 301."  
(emphasis added).

However, Section 303(a) states that the Commissioner, on his own initiative, may initiate a reexamination procedure. [FN1] He may determine whether a substantial new question of patentability has been raised by the request with or without consideration of *other patents* or printed publications, as well as those cited pursuant to Section 301. We note that the words "*prior art*," used in Sections 301 and 302, do not appear in this Section.

The Statute refers to both patents and printed publications. Patents are printed as publications by most countries, [FN2] and if they are to be used only in such capacity then there would have been no reason for this redundancy. We must assume that Congress intended patents to also be the basis for rejection other than as a printed publication. Thus, patents may be used as evidence of prior inventorship by another or as evidence that the patentee of the reexamination patent has already obtained patent protection for his invention. The second patent would be barred by Section 101 if the inventions are identical or by the judicially-created doctrine of double patenting of the obviousness type, if there are only obvious differences between the claims of the respective patents.

However, Section 301 contains the limitation "*prior art*" to describe the patents and printed publications. Normally, "*prior art*" rejections exclude those based on public use or sale and those based on Section 112. [FN3]

[2] Where do "double patenting rejections of the obviousness type" fit in? Are they permissible under the reexamination statute, or are they, like public use and sale rejections, and Section 112 rejections (except as to new and amended claims), excluded? *In re Etter, supra*, states (225 USPQ p. 4):

"Patent claims are reexamined only in light of patents and printed publications under 35 U.S.C. § § 102, 103 . . . ."

Double patenting rejections are analogous to Section 103 rejections and depend on the presence of a prior "patent" as the basis for the rejection. Thus, we take the position that such rejection falls within the ambit of those intended by the statute and are not specifically excluded by the *Etter* case. Further, the *Etter* court focused on the question of presumption of validity with regard to a reexamination patent and its statement as to the scope of proper rejections in the evaluation of a reexamination patent are not the point of the ruling.

We now deal with the *merits* of the double patenting rejection. The rejection is based on the evidence that the general combination of oxygen and combustion analyzers used with sampling devices is known and that it would have been obvious to employ the particular oxygen analyzer defined in the claims of the Obiaya patent in combination with the sampling device. We believe that claims to such combination do not define a separate and distinct invention from the claims to the oxygen analyzer.

Appellant has indicated that it would be futile to add a terminal disclaimer to this reexamination application since this application has a patent date which is earlier than that of the other Obiaya patent. It appears that appellant's choice is clear. He may acquiesce in the double patenting rejection or he may file a

terminal disclaimer in his other patent, assuming that the Obiaya patent and the present application are commonly owned.

The decision of the examiner is affirmed.

*AFFIRMED.*

FN1 Houston Atlas, Inc. v. Del Mar Scientific Inc., 217 USPQ 1032 at 1037 (DC NTex. 1982).

FN2 Manual of Patent Examining Procedure, 4th Ed., Aug. 1983, page 900-5, Section 901.05D(b), Unprinted Foreign Patents.

FN3 In re Etter, 756 F.2d 852, 225 USPQ 1 (Fed. Cir. 1985) (at 4) states that ". . . only new or amended claims are also examined under 35 U.S.C. § § 112 and 132, 37 CFR 1.552; MPEP § 2258."

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227 U.S.P.Q. 58

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